

### **DETAILED ACTION**

1. The examiner acknowledges the receipt of the amendment filed March 13, 2008. Claims 1, 5-23, 26-31, 40, 43-52, 55-57 are pending.
2. In view of the argument filed September 14, 2007, the rejection of Claims 1, 5-23, 26-31, 40, 43-52, 55-57 under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Barancyk et al. (US 5,922,475), is withdrawn.
3. In view of the argument filed September 14, 2007, the rejection of Claims 1, 5-23, 26-31, 40, 43-52, 55-57 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-16 of U.S. Patent No. 5,922,475, is withdrawn.

### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:  

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
5. Claims 1, 5-23, 26-31, 40, 43-52, 55-57 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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An improper use of MARKUSH GROUPS is recited in claim 1 (line 6), The term "selected from ..... and/or ..." is improper. It should be corrected to "selected from a group consisting of ....., and ...." See MPEP 2173.05 (h).

An improper use of MARKUSH GROUPS is recited in claim 30 (line 2-5), The term "selected from ..... and ..." is improper. It should be corrected to "selected from a group consisting of ....., and ...." See MPEP 2173.05 (h).

An improper use of MARKUSH GROUPS is recited in claim 40 (line 6), The term "selected from ..... and/or ..." is improper. It should be corrected to "selected from a group consisting of ....., and ...." See MPEP 2173.05 (h).

An improper use of MARKUSH GROUPS is recited in claim 46 (line 5-10), The term "selected from ..... and ..." is improper. It should be corrected to "selected from a group consisting of ....., and ...." See MPEP 2173.05 (h).

An improper use of MARKUSH GROUPS is recited in claim 48 (line 1-2), The term "selected from ..... and ..." is improper. It should be corrected to "selected from a group consisting of ....., and ...." See MPEP 2173.05 (h).

2173.05(h) Alternative Limitations

I. MARKUSH GROUPS

Alternative expressions are permitted if they present no uncertainty or ambiguity with respect to the question of scope or clarity of the claims. One acceptable form of alternative expression, which is commonly referred to as a Markush group, recites members as being "selected from the group consisting of A, B and C." See *Ex parte Markush*, 1925 C.D. 126 (Comm'r Pat. 1925).

*Ex parte Markush* sanctions claiming a genus expressed as a group consisting of certain specified materials. Inventions in metallurgy, refractories, ceramics, pharmacy, pharmacology and biology are most frequently claimed under the Markush formula but

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purely mechanical features or process steps may also be claimed by using the Markush style of claiming. See *Ex parte Head*, 214 USPQ 551 (Bd. App. 1981); *In re Gaubert*, 524 F.2d 1222, 187 USPQ 664 (CCPA 1975); and *In re Hamisch*, 631 F.2d 716, 206 USPQ 300 (CCPA 1980). It is improper to use the term "comprising" instead of "consisting of." *Ex parte Dotter*, 12 USPQ 382 (Bd. App. 1931).

The use of Markush claims of diminishing scope should not, in itself, be considered a sufficient basis for objection to or rejection of claims. However, if such a practice renders the claims indefinite or if it results in undue multiplicity, an appropriate rejection should be made.

Similarly, the double inclusion of an element by members of a Markush group is not, in itself, sufficient basis for objection to or rejection of claims. Rather, the facts in each case must be evaluated to determine whether or not the multiple inclusion of one or more elements in a claim renders that claim indefinite. The mere fact that a compound may be embraced by more than one member of a Markush group recited in the claim does not necessarily render the scope of the claim unclear. For example, the Markush group, "selected from the group consisting of amino, halogen, nitro, chloro and alkyl" should be acceptable even though "halogen" is generic to "chloro."

The materials set forth in the Markush group ordinarily must belong to a recognized physical or chemical class or to an art-recognized class. However, when the Markush group occurs in a claim reciting a process or a combination (not a single compound), it is sufficient if the members of the group are disclosed in the specification to possess at least one property in common which is mainly responsible for their function in the claimed relationship, and it is clear from their very nature or from the prior art that all of them possess this property. While in the past the test for Markush-type claims was applied as liberally as possible, present practice which holds that claims reciting Markush groups are not generic claims (MPEP § 803) may subject the groups to a more stringent test for propriety of the recited members. Where a Markush expression is applied only to a portion of a chemical compound, the propriety of the grouping is determined by a consideration of the compound as a whole, and does not depend on there being a community of properties in the members of the Markush expression.

When materials recited in a claim are so related as to constitute a proper Markush group, they may be recited in the conventional manner, or alternatively. For example, if "wherein R is a material selected from the group consisting of A, B, C and D" is a proper limitation,

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then "wherein R is A, B, C or D" shall also be considered proper.

#### Subgenus Claim

Genus, subgenus, and Markush-type claims, if properly supported by the disclosure, are all acceptable ways for applicants to claim their inventions. They provide different ways to present claims of different scope. Examiners should therefore not reject Markush-type claims merely because there are genus claims that encompass the Markush-type claims.

#### II. "OR" TERMINOLOGY

Alternative expressions using "or" are acceptable, such as "wherein R is A, B, C, or D."

The following phrases were each held to be acceptable and not in violation of 35 U.S.C.

112, second paragraph in *In re Gaubert*, 524 F.2d 1222, 187 USPQ 664 (CCPA

1975): "made entirely or in part of"; "at least one piece"; and "iron, steel or any other magnetic material."

Applicant's arguments filed March 13, 2008 have been fully considered but they are not persuasive. Applicants argue that applicants have found 142,008 patents cited for the use "and/or" in a patent search. However, applicants must recognize that the examination of a patent application is on case by case basis. Further, without pointing out a specific patent and the specific column line of the patent where the "and/or" cited, the examiner is unable to answer applicants' remark. Applicants must recognize that when a Markush group is cited, it must meet the requirement set forth in MPEP 2173.05 (h).

### ***Double Patenting***

6. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct

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from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

7. Claims 1, 5-23, 26-31, 40, 43-52, 55-57 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-16 of U.S. Patent No. 5,922,475 in view of Anderson et al. (US 6,306,965).

1. (Previously presented) A reaction product of reactants, wherein the reactants comprise:

a) at least one copolymer comprising at least 30 mol % of residues having the following alternating structural units:



wherein DM represents a residue from a donor monomer, AM represents a residue from an acceptor monomer, at least 15 mol % of the copolymer comprising a donor monomer selected from isobutylene, diisobutylene, dipentene, and/or isoprenol at least 15 mol % of the copolymer comprising an acrylic monomer as an acceptor monomer; the copolymer containing pendant carbamate groups or groups that can be converted to carbamate groups;

b) at least one aldehyde; and

c) at least one monohydric alcohol;

wherein when the copolymer (a) contains groups that can be converted to carbamate groups, the reactants further comprise:

d) at least one material that will convert said groups into carbamate groups.

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<p>1. A curable film-forming composition comprising (i) a polymer, polyether or oligomer containing a plurality of carbonate groups of the structure:</p> <p>20</p> $\text{---O---}\overset{\text{O}}{\parallel}\text{---NH}_2$ <p>25</p> <p>(ii) an acrylic copolymer containing a plurality of groups of the structure:</p> <p>30</p>	<p>35</p> $\text{---[CH}_2\text{---}\overset{\text{R}_1}{\underset{\text{O}}{\parallel}}\text{---C(=O)---O---}\overset{\text{R}_2}{\underset{\text{O}}{\parallel}}\text{---C(=O)---NH---[CH}_2\text{---}]_n\text{---[O---R}_3\text{---}]_m\text{---[O---R}_4\text{---}]_p\text{---}}$ <p>40</p> <p>wherein <math>R_1</math> is hydrogen or methyl, <math>R_2</math> is a divalent linking group having about 1 to about 30 carbon atoms, <math>R_3</math> is hydrogen or a lower alkyl group having about 1 to about 10 carbon atoms, and <math>R_4</math> is a lower alkyl group having about 1 to about 6 carbon atoms; <math>R_5</math> is hydrogen or</p> <p>45</p> $\text{---NH---}\overset{\text{R}_5}{\parallel}\text{---O---R}_6$ <p>50</p> <p>where <math>R_5</math> and <math>R_6</math> are as defined above; and</p> <p>(iii) an amineoplast crosslinking agent different from (ii) consisting methylol groups, methylol ether groups, or mixtures thereof.</p> <p>55</p>
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The difference between the invention of claims 1, 5-23, 26-31, 40, 43-52, 55-57 and Barancyk et al. is that Barancyk et al. do not indicate a composition comprising a donor monomer selected from isobutylene, diisobutylene, dipentene, and isoprenol.

However, Anderson et al. (col. 1, line 12-22) disclose a coating composition comprising carbamate functional polymers. Anderson et al. (col. 25, claim 8) clearly claim a composition comprising olefins. Further, Anderson et al. (col. 6, line 30-35) explicitly teach that the claimed olefins can include isobutylene and diisobutylene. Therefore, in view of substantially identical endeavor of developing a carbamate containing coating composition, and motivated by the expectation of success of developing a coating composition with a combination of good exterior durability, acid etch and water spot resistance, and excellent gloss and appearance (col. 1, line 39-43), it would have been obvious to one of ordinary skill in art to incorporate the isobutylene

and diisobutylene of Anderson et al. into Barancyk et al. to obtain the invention of claims 1, 5-23, 26-31, 40, 43-52, 55-57.

Further, in view of the substantially identical monomers and comonomer composition as taught in Barancyk et al. and Anderson et al, and as claimed, the examiner has a reasonable basis that the claimed polydispersity properties is inherently possessed in Barancyk et al. and Anderson et al. Since the PTO does not have proper means to conduct experiments, the burden of proof is now shifted to applicants to show otherwise. In re Best, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977); In re Fitzgerald, 205 USPQ 594 (CCPA 1980).

### ***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

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9. Claims 1, 5-23, 26-31, 40, 43-52, 55-57 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Baranczyk et al. (US 5,922,475), in view of Anderson et al. (US 6,306,965) for the reasons adequately set forth from paragraph 6 of the office action of November 28, 2007.

1. (Previously presented) A reaction product of reactants, wherein the reactants comprise:

a) at least one copolymer comprising at least 30 mol % of residues having the following alternating structural units:



wherein DM represents a residue from a donor monomer, AM represents a residue from an acceptor monomer, at least 15 mol % of the copolymer comprising a donor monomer selected from isobutylene, diisobutylene, dipentene, and/or isoprenol at least 15 mol % of the copolymer comprising an acrylic monomer as an acceptor monomer; the copolymer containing pendant carbamate groups or groups that can be converted to carbamate groups;

b) at least one aldehyde; and

c) at least one monohydric alcohol;

wherein when the copolymer (a) contains groups that can be converted to carbamate groups, the reactants further comprise:

d) at least one material that will convert said groups into carbamate groups.

40. (Previously Presented) A copolymer comprising at least 30 mol % of residues having the following alternating structural units:



wherein DM represents a residue from a donor monomer, AM represents a residue from an acceptor monomer, at least 15 mol % of the copolymer comprising a donor monomer isobutylene, diisobutylene, dipentene and/or isoprenol, at least 15 mol % of the copolymer comprising an acrylic monomer as an acceptor monomer; the copolymer containing pendant groups of the structure:



where R' is alkyl containing one to eight carbon atoms and R'' is selected from H, CH<sub>2</sub>OR', linear, cyclic or branched C<sub>1</sub> to C<sub>20</sub> alkyl, alkenyl, C<sub>6</sub> to C<sub>20</sub> aryl, alkaryl and aralkyl.

Barancyk et al. (abstract) disclose a curable composition comprising a polyester polymer or oligomer containing plurality of carbamate groups, an alkylolated and optionally etherified carbamate functional acrylic polymer, and an aminoplast crosslinking agent. Further, Barancyk et al. (col. 6, line 16-45; col. 11, line 7-33) disclose a list of comonomers, which comprises the donor and acceptor monomers as claimed. Barancyk et al. (col. 5, line 28-43) disclose the incorporation of polyisocyanates into the disclosed composition.

Regarding the claimed "at least 15 mol%" of the donor or the acceptor monomer in the claimed composition, Barancyk et al. (col. 11-14, the table of examples) clearly indicate such embodiment in the table.

Regarding the claimed "aldehyde" and "alcohol" components, Barancyk et al. (col. 5, line 18-24; col. 12, line 10-24) clearly teach the incorporation of aldehyde and alcohol into the disclosed composition.

Regarding the claimed molecular weight properties, Barancyk et al. (col. 7, line 17-30) clearly teach a molecular weight range that significantly overlaps with the molecular weight range being claimed.

Since the composition of Barancyk et al. do not disclose the need for maleate monomer segments and fumarate monomer segments, the examiner has a reasonable basis to believe that the composition of Barancyk et al. encompasses compositions that are free of maleate monomer segments and fumarate monomer segments.

Regarding the claimed structure of the function group of claim 40, Baranczyk et al. (col. 4, line 24-32; col. 5, line 1-10) clearly disclose the claimed structure.

Regarding the claimed "alternating" structural properties, because the "alternating" nature of the comonomers depends on their Alfrey-Price  $e$  values of the comonomers, in view of the substantially identical monomers disclosed in Baranczyk et al. and the monomers as claimed, and in view that the polymerization process of Baranczyk et al. (col. 6, line 46-65) and as claimed are both drawn to the preparation of the copolymers with organic peroxides, the examiner has a reasonable basis that the claimed "alternating" feature, is inherently possessed in Baranczyk et al.

The difference between the invention of claims 1, 5-23, 26-31, 40, 43-52, 55-57 and Baranczyk et al. is that Baranczyk et al. do not indicate a composition comprising a donor monomer selected from isobutylene, diisobutylene, dipentene, and isoprenol.

However, Anderson et al. (col. 1, line 12-22) disclose a coating composition comprising carbamate functional polymers. Anderson et al. (col. 25, claim 8) clearly claim a composition comprising olefins. Further, Anderson et al. (col. 6, line 30-35) explicitly teach that the claimed olefins can include isobutylene and diisobutylene. Therefore, in view of substantially identical endeavor of developing a carbamate containing coating composition, and motivated by the expectation of success of developing a coating composition with a combination of good exterior durability, acid etch and water spot resistance, and excellent gloss and appearance (col. 1, line 39-43), it would have been obvious to one of ordinary skill in art to incorporate the isobutylene

and diisobutylene of Anderson et al. into Barancyk et al. to obtain the invention of claims 1, 5-23, 26-31, 40, 43-52, 55-57.

Further, in view of the substantially identical monomers and comonomer composition as taught in Barancyk et al. and Anderson et al, and as claimed, the examiner has a reasonable basis that the claimed polydispersity properties is inherently possessed in Barancyk et al. and Anderson et al. Since the PTO does not have proper means to conduct experiments, the burden of proof is now shifted to applicants to show otherwise. In re Best, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977); In re Fitzgerald, 205 USPQ 594 (CCPA 1980).

Applicant's arguments filed March 13, 2008 have been fully considered but they are not persuasive. Applicants argue that neither Barancyk nor Anderson disclose the use of a molar excess of isobutylene or diisobutylene if those ingredients are added to the reaction mixture used to form the acrylic copolymer that is disclosed in Barancyk to obtain the alternating copolymer as claimed. However, applicants fail to recognize that that the formation of an alternating copolymer is dependent on the reactivity ratios of the (co)monomers. In view of the substantially identical (co)monomers disclosed in Barancyk and Anderson, and the monomeric composition as claimed, the examiner has a reasonable basis that the "alternating" feature as claimed is inherently possessed in copolymer as taught by Barancyk and Anderson. Since the PTO does not have proper means to conduct experiments, the burden of proof is now shifted to applicants to show otherwise. In re Best, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977); In re Fitzgerald, 205 USPQ 594 (CCPA 1980).

***Conclusion***

10. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William K. Cheung whose telephone number is (571) 272-1097. The examiner can normally be reached on Monday-Friday 9:00AM to 2:00PM; 4:00PM to 8:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David WU can be reached on (571) 272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/William K Cheung/  
Primary Examiner, Art Unit 1796

William K. Cheung, Ph. D.

Primary Examiner

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